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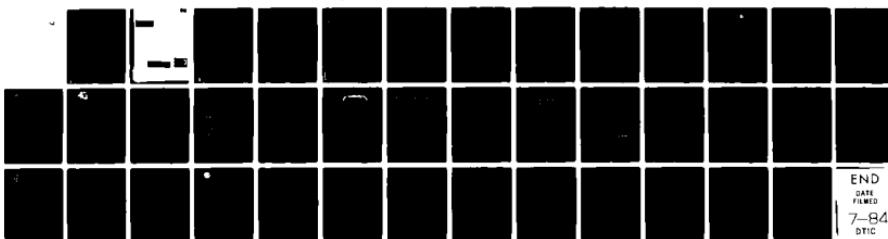
WATER RESOURCES INVESTIGATION CAPE GIRARDEAU - JACKSON
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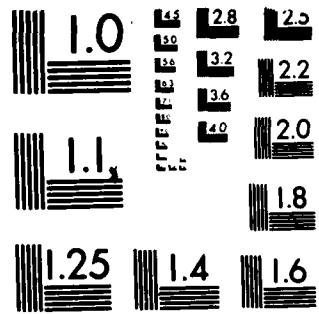
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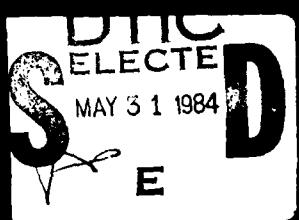
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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Water Resources Investigation Cape Girardeau-Jackson Metropolitan Area, Missouri Vol.4 - Appendix C - Public Views and Responses		5. TYPE OF REPORT & PERIOD COVERED Survey Report
7. AUTHOR(s)		6. PERFORMING ORG. REPORT NUMBER
8. CONTRACT OR GRANT NUMBER(s)		
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Engineer District, St. Louis 210 Tucker Boulevard, North St. Louis, MO 63101		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE December 1983
		13. NUMBER OF PAGES 36
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Studies of a 210-square mile area including the Cape Girardeau-Jackson, Missouri metropolitan areas are addressed in this report. The problem of flooding along Cape La Croix Creek and Walker Branch in the City of Cape Girardeau (drainage area of 21.4 square miles) is addressed by the Recommended Plan. Environmental, outdoor recreation, and social well-being concerns have also been addressed. Flood control improvements for the remainder of the study area, including the city of Jackson and the rural area along the Little River Diversion Channel, are not economically justified at this time.		

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UNCLASSIFIED
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20. (Continued)

The Recommended Plan has widespread public support; it reduces the total average annual flood damages by about 85%; and addresses the environmental and outdoor recreational needs. With implementation of the Recommended Plan of improvements the flood damages normally expected to result from a 500-year flood (this is a flood having a 0.2 percent chance of occurring in any one particular year) would be reduced by about 61 percent. Some 263 existing structures subject to flooding will have full 100-year flood protection with 44 additional structures receiving partial protection. Average annual tangible benefits divided by average annual costs yield a benefit-to-cost ratio of 1.7 to 1, based on 8-1/8 percent interest and October 1983 price levels.

The Recommended Plan of improvements is estimated to cost \$25,900,000 based on October 1983 price levels. Under existing laws and cost sharing procedures these costs would be shared \$20,700,000 Federal and \$5,200,000 non-Federal sponsor. In addition, the local sponsor would be responsible for all operation and maintenance costs currently estimated to be about \$58,100 annually, plus \$45,700 annual major replacement costs, totalling \$103,800 annually. The Cape La Croix Creek and Walker Branch Levee and Drainage District is the local sponsor. No mitigation would be required by the implementation of the Recommended Plan and no unresolved environmental or other issues are known to exist.

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

CAPE GIRARDEAU-JACKSON
METROPOLITAN AREA, MISSOURI

SURVEY REPORT

VOLUME FOUR
APPENDIX C

PUBLIC VIEWS AND RESPONSES

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VOLUME FOUR
CAPE GIRARDEAU - JACKSON
METROPOLITAN AREA, MISSOURI
APPENDIX C
PUBLIC VIEWS AND RESPONSES

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CAPE GIRARDEAU - JACKSON
VOLUME FOUR
APPENDIX C

PUBLIC VIEWS AND RESPONSES

1. The purpose of this appendix is to present a summary of the coordination and contacts between the Corps of Engineers and various governmental agencies, the project sponsor, and the general public.

PUBLIC INVOLVEMENT APPROACH

2. The overall Corps of Engineers approach has been to inform governmental, political and the local citizens what was being done in the way of data gathering, engineering, and planning by emphasizing direct communications supplemental with formal public meetings. Periodic input from these groups better defined the problems and needs. As a result, continued adjustments and improvements have been made.

a. Formal public meetings were used to officially identify the project, the local problems, needs, and opportunities, and to better establish priorities and levels of concern and to receive concerns and comments from interested parties.

(1) From the time of authorization of this project on 11 April 1974 the gathering of facts was necessary in order to be prepared to discuss the Cape Girardeau-Jackson flooding concerns at the first public meeting held in Alms Schrader School in Cape Girardeau on 3 April 1975. At this meeting the Corps provided information to approximately 90 attendees. The meeting was conducted by Lt. Colonel Richard W. Gell, Deputy District Engineer, U.S. Army Engineer District, St. Louis, Missouri. The purpose of this meeting was to obtain public views and comments in the identification of water and related land resource problem areas and to recognize any environmental and recreational opportunities that might exist. The meeting was fully successful in meeting its stated purposes. A slide presentation and exhibits were used to inform the attendees. Opposition to the study was not apparent. Most comments were concerned about accelerating the study process so that the actual improvements could begin.

(2) This public meeting was held on 8 March 1979, at the Southeast Missouri State University's University Center in Cape Girardeau. Less than 50 people attended. Lt. Colonel John Wilkes III, Deputy District Engineer, U.S. Army Engineer District, St. Louis, gave a status report and then opened up to the public, the discussion of those alternatives available to deal with the flooding problem. The third portion of the meeting provided for discussion and written comments in which the public indicated a preference to detention sites and channelization. They wanted to know their responsibilities and costs.

(3) The third meeting was held on 2 October 1979 to discuss the study schedule. Corps officials went over the status of alternative plans being developed and discussed hydraulic information and how it might lead to certain channelization or combinations of channelization and dry detention.

(4) Colonel Robert J. Dacey conducted the Stage 2 public meeting that was held at Southeast Missouri State University in Cape Girardeau on 24 February 1981 to discuss the study information and results contained in the Stage 2 report. A presentation was made to some 30 people who attended. Slides and discussion covered the plans that had been developed by the Corps and the impacts these plans might have on the community. The attendees supported the direction the Corps was taking in the study. The one area that was emphasized was for the Corps to study in greater detail the use of detention reservoirs. The Corps agreed to do this in Stage 3.

(5) The final public meeting was conducted by Lt. Colonel Paul P. Chapman, U.S. Army Engineer District, St. Louis. This meeting was held on 19 August 1982 at the Vocational School/Adult Basic Education Building, Cape Girardeau, with over 200 people in attendance. The purpose of this meeting was to go over the array of plans briefly, present the recommended plan in detail and then entertain questions, which dealt with specific details of the plan. The reaction to the recommended plan was most favorable.

b. Public involvement was concerned with local citizens and their problems. Other involvement dealt with: Federal agencies concerning environmental and recreational matters; state agencies dealing with water quality, erosion, and pollution; regional agencies dealing with cultural, social, economic, and planning matters; local agencies ensuring the accuracy and interrelationships of information and its impact on them; and county/city officials keeping informed on the impacts as they apply to planning, transportation, safety, recreation, and human resources to ensure that an economical, workable solution, along with a justifiable recommendation, is developed to best serve the community.

PUBLIC VIEWS AND RESPONSES

3. The numerous parties involved in this planning process of necessity interacted on problems dealing with bridge replacement, channelization, site clearing and erosion control, road construction, structural removal, recreation, air and water pollution, and other important community considerations.

4. Presentation of public views and responses to the recommended plan is covered in this appendix. Specific comments, letters of concern, general comments, and recommendations are included in this document along with Corps of Engineers responses where warranted.

5. Throughout the study process various team members representing real estate, hydraulics, engineering, economics, recreation, environmental, and cultural areas periodically met with local officials and citizenry on an informal basis in order to clarify problems and concerns, to better evaluate conditions at the site, and to coordinate and exchange information pertinent to the study process. As study direction was focused on various possible solutions, appropriate feedback from pertinent local representatives was sought.

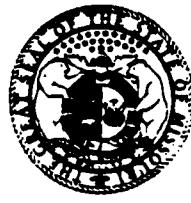
DETAILED SUPPORTING DATA

6. The data herein constitutes a portion of the more significant detailed supporting data available regarding the Cape Girardeau-Jackson study area.

7. An index to the material that follows is shown below:

<u>Letter</u>	<u>Page</u>
a. Missouri Department of Social Services, 29 November 1983.	C-5
b. Resolution from the City of Cape Girardeau, 7 December 1983.	C-6
c. U.S. Department of Transportation, Maritime Administration, 8 December 1983.	C-8
d. Missouri Department of Conservation, 9 December 1983, and Corps of Engineers response.	C-9
e. City of Cape Girardeau, 13 December 1983.	C-13
f. Senator John C. Danforth, 14 December 1983.	C-14
g. Cape La Croix Creek - Walker Creek Branch Levee and Drainage District (THE LOCAL SPONSORING LETTER), 15 December 1983.	C-15
h. Congressman Bill Emerson, 15 December 1983.	C-16
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j. Missouri Department of Natural Resources, 16 December 1983, and Corps of Engineers response.	C-18
k. U.S. Environmental Protection Agency, 19 December 1983.	C-20
l. U.S. Department of Agriculture, Soil Conservation Service, 21 December 1983, and Corps of Engineers response.	C-21

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m. Cape Girardeau Chamber of Commerce, 27 December 1983.	C-24
n. U.S. Department of the Interior, Fish and Wildlife Service, 5 January 1984, and Corps of Engineers response.	C-25



MISSOURI
DEPARTMENT OF SOCIAL SERVICES

CHRISTOPHER S. BOND
GOVERNOR

DIVISION OF HEALTH
BROADWAY STATE OFFICE BUILDING
P. O. BOX 570
JEFFERSON CITY
65102

November 29, 1983

Colonel Gary D. Beech
Director
St. Louis District Corps
of Engineers
Department of the Army
210 Tucker Blvd, North
St. Louis, MO 83101

Dear Colonel Beech:

The Survey Report on Water Resources Investigation for Cape Girardeau--Jackson Metropolitan Area, Missouri has been reviewed by the Section of Environmental Health, Missouri Division of Health.

This review has shown no measurable adverse effects on public health. Hopefully the issue of groundwater pollution from individual disposal systems will be resolved with new state legislation.

Thank you for the opportunity to comment on this report.

Sincerely,

Robert L. Hotchkiss, M.D.
Director
Missouri Division of Health

RLH/WJB/sjh

APPENDIX C
C-5

BILL NO. 83-136

RESOLUTION NO. 84

A RESOLUTION SUPPORTING THE RECOMMENDATIONS
OF THE CORPS OF ENGINEERS ON THE WATER RESOURCES
INVESTIGATION: CAPE GIRARDEAU-JACKSON METRO-
POLITAN AREA, MISSOURI SURVEY REPORT DATED
DECEMBER 1983

WHEREAS, serious flooding has periodically occurred along portions of Cape LaCroix Creek and Walker Creek causing millions of dollars in damage and untold human suffering, and

WHEREAS, it is desirable that all feasible actions to prevent or alleviate such damage and human suffering be taken as expeditiously as possible, and

WHEREAS, the Corps of Engineers has completed a water resources investigation along portions of the Cape LaCroix Creek and Walker Creek dated December 1983, and

WHEREAS, the City Council recognizes that all levels of government must operate within economic restraints and that the current national objective of the Federal Government is to maximize net tangible benefits, and

WHEREAS, the City Council believes that the sum of the tangible and intangible benefits of the recommended plan exceed the project costs,

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF CAPE GIRARDEAU, MISSOURI, AS FOLLOWS:

1. The City Council hereby declares that it strongly supports the recommendations contained in the Water Resources Investigation: Cape Girardeau-Jackson Metropolitan Area, Missouri dated December 1983.

PASSED AND ADOPTED THIS 7th DAY OF December, 1983.


Howard C. Tooke
Howard C. Tooke, Mayor

ATTEST:


Verna L. Landis, City Clerk

OFFICE OF THE
CITY CLERK/COLLECTOR

CITY OF CAPE GIRARDEAU

CITY HALL
P.O. BOX 564
CAPE GIRARDEAU, MO. 63701

STATE OF MISSOURI }
COUNTY OF CAPE GIRARDEAU } ss.
}

I, Verna L. Landis, City Clerk of
the City of Cape Girardeau, Missouri, hereby
certifies that the attached is a true and
correct copy of BILL NO. 83-135, RESOLUTION
No. 84, passed and adopted this 7th day of
December, 1983.

Witness my hand and the seal of
the City of Cape Girardeau, Missouri, this
13th day of December, 1983.

Verna Landis
City Clerk

(Seal)

APPENDIX C
C-7

"HOME OF MISSOURI STATE FLAG"



U.S. Department
of Transportation
**Maritime
Administration**

400 Seventh Street, S W
Washington, D C 20590

December 8, 1983

Colonel Gary D. Beech
Department of the Army
St. Louis District
Corps of Engineers
210 Tucker Boulevard, North
St. Louis, Missouri 63101

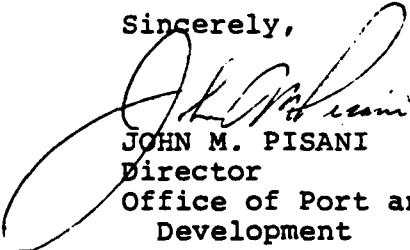
Dear Colonel Beech:

Thank you very much for forwarding Volume 1 of the Survey Report on Water Resources Investigation: Cape Girardeau - Jackson Metropolitan Area, Missouri to the Maritime Administration for review and comments.

No significant impacts on port development activities are evident in the report, and, therefore, we have no comments to offer at this time.

We appreciate, however, the opportunity to review this report and your interest in the work of the Maritime Administration.

Sincerely,



JOHN M. PISANI
Director
Office of Port and Intermodal
Development

APPENDIX C
C-8



MISSOURI DEPARTMENT OF CONSERVATION

Season's
Greetings

MAILING ADDRESS:
P.O. Box 180
Jefferson City, Missouri 65102-0180

STREET LOCATION:
2901 North Ten Mile Drive
Jefferson City, Missouri

Telephone 314/751-4115
LARRY R. GALE, Director

December 9, 1983

Colonel Gary D. Beech
District Engineer
St. Louis District, Corps of Engineers
210 North Tucker Boulevard
St. Louis, Missouri 63101

**Re: Planning Division - Cape Girardeau-Jackson
Metropolitan Area Survey Report**

Dear Colonel Beech:

Thank you for your letter of November 16, 1983 and the opportunity to offer comments on Volume One of the Cape Girardeau-Jackson Metropolitan Area Survey Report.

Members of my staff have been involved in the study effort since 1979. In my January 18, 1983 letter to the Board of Engineers for Rivers and Harbors (copy enclosed), we expressed our support for the project as outlined in the Draft Survey Report dated September 1982.

The project recommended in this Survey Report will provide a needed degree of flood protection. The inclusion of part of the environmental quality aspects helps alleviate part of the project caused adverse impacts to fish and wildlife resources. Since the project area is largely urban, there may be a temptation to "write off" or ignore the value of fish and wildlife while accentuating people oriented aspects. A prime case in point is the inclusion of miles of hiking trails, without apparent consideration of the quality of the experience that would be found on the trails. It is our position that even under Principles and Guidelines, there is a place for environmental quality, when that environmental quality contributes to the quality of human experience. With this in mind, we believe that inclusion of plantings along the trails would improve the quality (and value) of the hiking experience through improved wildlife habitat. In our estimation that effort is proper, especially in a metropolitan area such as this project.

APPENDIX C
C-9

COMMISSION

JEFF CHURAN
Chillicothe

CARL DISALVO
St. Louis

JOHN B. MAHAFFEY
Springfield

RICHARD T. REED
East Prairie

Missouri Department Of Conservation

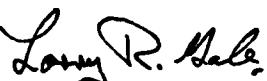
Colonel Gary D. Beech
December 9, 1983
Page Two

Three other items that should be included in the recommended plan are:

1. Item f, page 47. When possible, work on the Walker Branch should be accomplished from one stream bank. Hopefully the undisturbed bank would be the bank with the best wildlife habitat.
2. The deletion of the ponding device from the September 1982 Draft Survey Report is distressing, especially in light of the fact that there are uncompensated aquatic ecosystem losses. We would encourage you to reconsider the pooling device proposed for the Independence Street reach of Cape La Croix Creek.
3. The environmental corridor along the Cape La Croix Creek hiking and biking trail should be restored to the recommended project. As discussed earlier, such a corridor would improve the quality of outdoor experience and therefore be justified under Principles and Guidelines.

Once again, the opportunity to offer comments is appreciated. If you or your staff have questions, please contact William H. Dieffenbach of my staff.

Sincerely,


LARRY R. GALE
DIRECTOR

cc: U. S. Fish and Wildlife Service
Columbia, Missouri

Mr. Charles Michaels
Department of Natural Resources
Jefferson City, Missouri

January 18, 1983

Colonel F. W. Mueller, Jr.
Resident Member
Department of the Army
Board of Engineers for Rivers and Harbors
Kingman Bldg.
Fort Belvoir, Virginia 22060

Re: Report on Cape Girardeau-Jackson Metropolitan Area, Missouri

Dear Colonel Mueller:

We have received notice that the St. Louis District, Corps of Engineers' report on flood control in the Cape Girardeau-Jackson Metropolitan Area has been referred for review to the Board of Engineers for Rivers and Harbors.

Our Department was involved in coordination on environmental aspects of this study. We endorse the recommendations for flood control and related recreational and environmental improvements in the Cape La Croix Creek watershed. Construction of these recommended projects would be in the best public interest.

Sincerely,

LARRY R. GALE
DIRECTOR

APPENDIX C
C-11

St. Louis District's Response to
Missouri Department of Conservation
Comments on Cape Girardeau-Jackson Survey Report
Letter dated December 9, 1983

Comment: . . . we believe that inclusion of plantings along the trails would improve the quality (and value) of the hiking experience through improved wildlife habitat. In our estimation that effort is proper, especially in a metropolitan area such as this project.

Response: Acknowledged.

Comment: . . . when possible, work on the Walker Branch should be accomplished from one stream bank . . .

Response: It is the District's intent to include one bank channel construction as a feature of the recommended plan.

Comment: . . . we would encourage you to reconsider the pooling device proposed for the Independence Street reach of Cape La Croix Creek.

Response: The recommended plan of the September 1982 report included channel enlargement on Cape La Croix Creek between miles 3.8 and 5.1. It was because of this channel work and its anticipated lowered water levels that the structure was considered useful. The present recommended plan does not include channelization between miles 3.8 and 5.1.

Comment: The environmental corridor along the Cape La Croix Creek hiking and biking trail should be restored to the recommended project. As discussed earlier, such a corridor would improve the quality of outdoor experience and therefore be justified under Principles and Guidelines.

Response: Acknowledged.

OFFICE OF THE
CITY MANAGER



CITY HALL
P O BOX 617
CAPE GIRARDEAU, MO 63701

December 13, 1983

Colonel Gary D. Beech, District Engineer
Corps of Engineers
210 Tucker Boulevard North
St. Louis, Missouri 63101

Dear Colonel Beech:

The City Council of the City of Cape Girardeau, Missouri, reviewed the Revised Water Resources Investigation: Cape Girardeau/Jackson Area, Missouri. At its meeting on December 7, 1983, the City Council approved the attached resolution declaring that it strongly supports the recommendations contained within the report and urges that the report be reviewed and implemented as expeditiously as possible.

The City of Cape Girardeau has received extensive water damage and has had to endure tremendous financial loss as a result of flooding within the area studied by this report. The implementation of this project will allow for a very positive cost benefit ratio.

If you desire any additional information as it relates to this proposed project, please do not hesitate to contact me.

Yours very truly,

A handwritten signature in black ink, appearing to read "Gary A. Eide".

Gary A. Eide
City Manager

GAE/egl

Enclosure

APPENDIX C
C-13

BOB PACKWOOD, OREG., CHAIRMAN
BARRY GOLDWATER, ARIZ.
JOHN C. DANFORTH, MO.
NANCY LANDON KASSABAUM, KANS.
LARRY PRESSLER, S. DAK.
SLADE GORTON, WASH.
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WILLIAM M. DISPENZERI, CHIEF COUNSEL
RALPH S. EVERETT, MINORITY CHIEF COUNSEL

United States Senate

COMMITTEE ON COMMERCE, SCIENCE,
AND TRANSPORTATION
WASHINGTON, D.C. 20510

December 14, 1983

Colonel Gary D. Beech, District Engineer
Corps of Engineers, St. Louis District
210 Tucker Boulevard, North
St. Louis, Missouri 63101

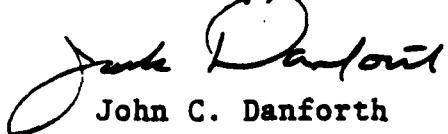
Dear Colonel Beech:

I am in receipt of the survey report containing the results of the Water Resources Investigation: Cape Girardeau-Jackson Area, Missouri.

The following is being submitted in response to your request for comments by December 18, 1983.

The problem of flooding along Cape La Croix Creek and Walker Branch in Cape Girardeau is very serious and I am pleased that the study addresses the problem. Businesses in the study area have incurred substantial damage from flooding over the years. Flood control measures in the recommended project will bring welcome relief.

Sincerely,



John C. Danforth

CAPE LA CROIX CREEK--WALKER CREEK BRANCH
LEVEE & DRAINAGE DISTRICT

December 15, 1983

Colonel Gary D. Beech--Dist. Engr.
U.S. Army Corps of Engrs.
St. Louis District
210 Tucker Blvd., North
St. Louis, Missouri 63101

Dear Colonel Beech:

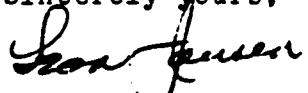
Re: Water Resources Investigation Cape Girardeau--Jackson
Metropolitan Area, Mo.
Survey Report dated December 1983

After reviewing above stated report, seeing the net tangible benefits raise, the benefit-to-cost ratio increase, the total project cost reduced, and understanding that the damage reduction factor will decrease from 92% to 85%, we the Levee District want to stand in support of the project.

Therefore, as stated in a previous letter the Cape La Croix--Walker Creek Branch Levee & Drainage District is willing to enter into negotiations with the Corps on the financial participation for construction of the project at a level consistent with the Administration's proposed up-front financing and cost sharing policies for construction. We understand the cost-sharing policies are voluntary and are subject to adjustment pending congressional action.

If there are any items regarding cooperation or co-ordination that we the Levee District can perform or provide, please advise.

Sincerely yours,



Leon Jansen--Secretary
Board of Supervisors
Cape La Croix Creek--
Walker Creek Branch
Levee and Drainage Distr.
Cape Girardeau, Mo. 63701

LJ:cs

BILL EMERSON
MEMBER OF CONGRESS
5TH DISTRICT, MISSOURI

HOUSE COMMITTEE ON
AGRICULTURE
HOUSE COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS

Congress of the United States
House of Representatives
Washington, D.C. 20515

OFFICES
SUITE 410
CANNON BUILDING
WASHINGTON, D.C. 20515
202/225-4404
THE FEDERAL BUILDING
330 BROADWAY
CAPE GIRARDEAU, MISSOURI 63701
314/325-0101
314 PINE
P. O. BOX 639
ROLLA, MISSOURI 65401
314/364-2455

December 15, 1983

Colonel Gary Beech
U. S. Army Corps of Engineers
St. Louis District
210 Tucker Blvd., North
St. Louis, MO 63101

Dear Colonel Beech:

I am writing in support of the proposed flood control and improvements along Cape LaCroix and Walker Creeks in Cape Girardeau, Missouri. Although the originally proposed plan offering a 90% plus level of protection against flooding would be preferable, the latest proposal offers a tremendous amount of flood protection over the present conditions. I am pleased that this recommendation is in the works and it is my sincere wish that this project proceeds expeditiously so that the residents and businesses in the study area can be given relief in the near future.

I greatly appreciate your efforts in this study and again lend my support and urging to an early approval and subsequent construction on this project.

Sincerely,

Bill Emerson
Bill Emerson
Member of Congress

BE/tp

cc: Mr. Jim Bishop
1225 Fairlane
Cape Girardeau, MO 63701

MARK O. HAYFIELD, OHIO, CHAIRMAN

TED OTTERSON, ALASKA
LOWELL P. WILKINS, JR., COLOR.
JAMES A. MC CLURE, IDAHO

PAUL LAMMELT, IOWA

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ROBERT W. KASTEN, JR., WIS.

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FRANCIS J. SULLIVAN SENATE STAFF DIRECTOR

United States Senate

COMMITTEE ON APPROPRIATIONS

WASHINGTON, D.C. 20510

December 16, 1983

Colonel Gary D. Beech
District Engineer
St. Louis District
Army Corps of Engineers
210 North 12th Street
St. Louis, MO 63101

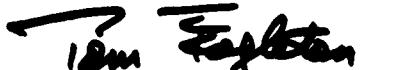
Dear Colonel Beech:

I would like to take this opportunity to express my support for the recommended flood protection plan contained in the recent survey entitled, Water Resources Investigation: Cape Girardeau-Jackson Area, Missouri.

The measures proposed to control flooding along portions of Cape LaCroix Creek and Walker Creek are badly needed to protect the many residents and businesses in the area. I note that the proposed project has a very favorable benefit-to-cost ratio of 1.7, and I understand the plan enjoys strong local support.

I trust the survey report will be expeditiously processed.

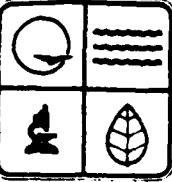
Yours very truly,


Thomas F. Eagleton
United States Senator

TFE:vkq

APPENDIX C

C-17



December 16, 1983

Colonel Gary D. Beech
District Engineer
St. Louis District
Corps of Engineers
210 North Tucker Boulevard
St. Louis, Missouri 63101

Dear Colonel Beech:

Thank you for the opportunity to review the Survey Report - Water Resources Investigation: Cape Girardeau - Jackson Metropolitan Area, Missouri.

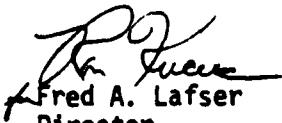
The following comments were received:

1. There is no mention of any consideration of a flood forecasting, warning, and emergency response system. In view of the extent of flood damage reduction in the project design, a flood warning system could be considered as a requirement for the local government in order to qualify for the federal expenditure.
2. On page 49 and elsewhere, mention is made that "zoning" and other selected non-structural alternatives were economically unjustified. Although the National Flood Insurance Program is not mentioned by name, there is a question as to whether or not this "zoning" refers to that of the National Flood Insurance Program.
3. Reduction of future flood damages will be of benefit to those living in the area and this project will also reduce the undesirable tasks associated with flood and post flood damages.

Thank you for the opportunity to comment.

Sincerely,

MISSOURI DEPARTMENT OF NATURAL RESOURCES


Fred A. Lafser
Director

FAL:cme

Christopher S. Bond Governor

Fred A. Lafser Director

APPENDIX C

C-18

**Response to Missouri Department of Natural Resources
Letter of December 16, 1983
Regarding Cape Girardeau Survey Report**

COMMENT #1: There is no mention of any consideration of a flood forecasting, warning and emergency response system. In view of the extent of flood damage reduction in the project design, a flood warning system could be considered as a requirement for the local government in order to qualify for the federal expenditure.

RESPONSE #1: We could not find firm documentation regarding the incremental benefits attributable to a flood forecasting, warning and/or emergency response system. Therefore, no requirement for local government action is appropriate.

COMMENT #2: On page 49 and elsewhere, mention is made that "zoning" and other selected non-structural alternatives were economically unjustified. Although the National Flood Insurance Program is not mentioned by name, there is a question as to whether or not this "zoning" refers to that of the National Flood Insurance Program.

RESPONSE #2: Reference to the National Flood Insurance Program, though possibly equally valid, was not specifically intended.

COMMENT #3: Reduction of future flood damages will be of benefit to those living in the area and this project will also reduce the undesirable tasks associated with flood and post flood damages.

RESPONSE #3: Concur



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
324 EAST ELEVENTH STREET
KANSAS CITY, MISSOURI - 64106

December 19, 1983

Colonel Gary D. Beech
District Engineer
U.S. Army Engineer District, St. Louis
210 Tucker Boulevard, North
St. Louis, Missouri 63101

Dear Colonel Beech:

Water Resources Investigation:
Cape Girardeau-Jackson Area, Missouri

We have reviewed the Survey Report and Environmental Assessment including the Draft Finding of No Significant Impact, for the project identified above. We have no comments to offer on the proposed action.

Thank you for the opportunity to review the document.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Edward J. West".

Charles H. Hajinian
Chief, Environmental Review Branch



United States
Department of
Agriculture

Soil
Conservation
Service

555 Vandiver Drive
Columbia, Missouri
65202

December 21, 1983

Colonel Gary D. Beech
U.S. Corps of Engineers
210 N. Tucker
St. Louis, Missouri 63101

Dear Colonel Beech:

We have reviewed "Water Resources Investigation, Cape Girardeau-Jackson Metropolitan Area, Missouri" and offer the following comments.

The report does not adequately address prime farmland effects. The assessment contains the acreage to be used for dam, road and spillway but does not address the size of the area where flood risk will be increased. The size of the total area to be affected and the increased flood hazard needs to be explained further. In addition, the loss of future production from lands to be changed by project action should be explained. Thank you for the opportunity to review this report.

Sincerely,

Paul F. Larson
State Conservationist

cc: Peter C. Myers, Chief, SCS, Washington, D. C.



The Soil Conservation Service
is an agency of the
Department of Agriculture

APPENDIX C
C-21



DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
210 TUCKER BOULEVARD, NORTH
ST. LOUIS, MISSOURI 63181

REPLY TO
ATTENTION OF

January 13, 1984

Planning Division

Mr. Paul F. Larson
United States Soil Conservation Service
555 Vandiver Drive
Columbia, Missouri 65202

Dear Mr. Larson:

We thank you for your December 21, 1983, letter of comment to our Cape Girardeau-Jackson Survey Report. In response to your request for a further explanation of the project's prime farmland effects, we provide the following:

The major effects of the project on farmland take place within the area of the proposed detention site. The soil of the detention basin (122 acres) is primarily of the Haymond silt loam type, and as such, would qualify as prime farmland (Soil Conservation Service, 1981). However, about 25 percent of this land borders tributary branches to the creek and is therefore not suitable for agriculture; rather such areas have been left in an essentially forested state. Haymond silt loam normally receives frequent (greater than once every 2 years) but brief (2-7 days) flooding, primarily between the months of January and May. In the future condition without the project, much of the farmland is expected to be residentially developed. With the project, farming could continue, but the use of the lower half of the basin for row crops would appear to be questionable in view of its primary usage for flood control. Flooding within the basin, particularly at the lower end, would be expected to be more frequent and of slightly longer duration; thus there would be an increased likelihood of crop damage.

Haymond silt loam is also well suited to hay production, and this would seem to represent its best

- 2 -

usage at least for the lower basin area. Less capital investment would be associated with hay production and thus, less economic risk with crop failure. This soil is moderately susceptible to erosion and the tight ground cover provided by the hayfields would be a safeguard against the potential impacts of erosion.

Sincerely,

Jack F. Rasmussen, P.E.
Chief, Planning Division

C
CC

EXECUTIVE
OFFICE

Cape Girardeau Chamber of Commerce

December 27, 1983

Colonel Gary D. Beech
District Engineer
U.S. Corps of Engineers
210 Tucker Blvd. North
St. Louis, MO 63101

Dear Colonel Beech:

The Cape Girardeau Chamber of Commerce has received and studied the Water Resources and Investigation, Cape Girardeau - Jackson area dated December, 1983 and we wholeheartedly support and endorse this plan to alleviate the flooding conditions in the Cape Girardeau area.

I realize that this is past the deadline for comment. My apologies. It was certainly not a lack of enthusiasm or interest in the plan, but simply a matter of missing a date.

We hope that this project will commence as soon as possible and anything that the Cape Girardeau Chamber of Commerce can do to help we would be more than happy to do so.

Sincerely,



Robert B. Hendrix
President

RBH:ls

APPENDIX C
C-24



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
Columbia Field Office
105 E. Ash
Columbia, Missouri 65201

4
January 5, 1983

Colonel Gary D. Beech
District Engineer
St. Louis District, Corps of Engineers
210 Tucker Boulevard, North
St. Louis, Missouri 63101

Dear Colonel Beech:

This letter constitutes our revised Final Fish and Wildlife Coordination Act Report on the Local Flood Protection Plan for the Cape Girardeau-Jackson Metropolitan Area of southeastern Missouri. We are providing this report in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The project is currently being studied under authority of a resolution adopted April 11, 1974, by the Committee of Public Works of the U.S. House of Representatives. This resolution and project study are the result of combining two earlier resolutions authorizing studies on: 1) the Hubble Creek and Ramsey Branch (resolution of May 24, 1966), and 2) the Cape La Croix Creek Watershed Study authorized by Congressional Resolution of October 12, 1972. The April 11, 1974, resolution requires that the study include "...consideration of the needs for flood control, wise use of floodplain lands, [and] wastewater management facilities, including stormwater runoff, regional water supply, water quality control, recreation, fish and wildlife conservation, [and] protection and enhancement of the environment in the metropolitan area."

In February, 1979, the U.S. Fish and Wildlife Service prepared a Planning Aid Letter (PAL) for the St. Louis District, Army Corps of Engineers (COE). Additionally, on March 9, 1982, we provided the District with a Draft Fish and Wildlife Coordination Act Report (FWCA). The Service also prepared the Final FWCA report on September 20, 1982. Since the completion of the Final FWCA Report, the COE submitted a new flood control plan for our review. On November 1, 1983, we provided the COE with a PAL regarding the new flood control plan. The objective of these reports were to evaluate flood control plans proposed by the COE for the Cape Girardeau-Jackson Metropolitan Area and to evaluate the impacts that could result with project implementation, thereby providing a basis for determining appropriate mitigation and compensation requirements. This revised Final FWCA Report evaluates the Recommended Plan according to the same objectives described for the PAL and the previous FWCA Report.

DESCRIPTION OF THE STUDY AREA

This project is the result of combining the Hubble Creek and Bamsey Creek Branch Study authorized in 1966 with the Cape La Croix Creek Watershed Study authorized in 1972. The study area encompasses approximately 210 square miles of rural, suburban and urban lands, all lying within Cape Girardeau County, Missouri. The northern and western borders of this study area include the watersheds of Indian and Hubble Creeks. The Mississippi River forms the eastern boundary and the Little River Diversion Channel forms the southern boundary. Most of the land in the study area is drained by small independent watersheds. These include Cape La Croix Creek, Ramsey Branch, Banney Creek, Judan Creek, Williams Creek, Duskin Creek and Randal Creek. Cape La Croix Creek is the major urban stream in the study area. Based on the location of the more significant flood damages, Cape La Croix Creek, and its tributary Walker Branch, were the only areas found to be economically justifiable for further study.

Statistics for Cape Girardeau County indicate that 25 percent of the area is forested, 64 percent is in agriculture, one percent is covered by water, and 10 percent of the area is either developed or in other lands uses. The 1980 Cape Girardeau population was 42,188.

Although the initial study effort included an analysis of the flooding problems within the entire 210 square mile Cape Girardeau-Jackson Metro Study area, present efforts (and this report) focus only on the highly urbanized and flood-prone lower portions of Cape Girardeau's 22 square mile Cape La Croix Creek Watershed. The latter also includes a small, highly urbanized tributary stream, the Walker Creek Branch. Overall, the Cape La Croix Creek Watershed is about 75 percent urban and 25 percent rural. Both Cape Girardeau and Jackson are growing rapidly and are forecast to someday become one community. It is in this setting that much flooding has occurred. To alleviate the impacts of flooding, much stream channelization has been accomplished. Such channelization efforts have served to quickly rid the flood-prone areas of water, but also have resulted in the loss of much valuable fish and wildlife habitat. The effort now is to alleviate flooding and flood damages by whatever means and methods seem most practical and cost-effective.

Description of Flooding Problems - Past and Present - and Flood Control Alternatives Being Considered

Flooding from Cape La Croix Creek and Walker Branch generally occurs in the spring and summer months as a result of intense thunderstorms over the watershed but could occur during any month of the year. These floods have a rapid rate of rise and are usually of short duration, but have caused tremendous property damages in recent years. They also have resulted in extensive losses of aquatic and terrestrial wildlife habitat as well as severe soil erosion. Major floods occurred in August, 1952, May, 1957, June and July, 1958, May, 1973 and March, 1977.

In the 1973 storm, 9.71 inches of rain fell at the Cape Girardeau Airport south of the basin, and 2.94 inches fell at Jackson, a short distance northwest of the basin. In the 1977 storm, 7.52 inches of rain fell at the Cape Girardeau Airport. Several local citizens who maintained rain gauges reported about 9 inches of rainfall in the central portion of the basins. This was verified by

city officials.

Floods of a lesser magnitude have occurred quite frequently in the study area. To counter the flooding problem, a wide variety of flood control measures were considered by the St. Louis District Corps of Engineers. These alternative plans consisted of varying combinations of channel lengths, widths, and bridge and building removal schemes. During the final stage of planning, the plans were reduced to seven plans including the "No Action" alternative. Other plans included a Non-Structural (NS) alternative, a Standard Project Flood (SPF) alternative, Environmental Quality (EQ), and National Economic Development (NED) alternatives, Plan A, and a Recommended Plan. The Non-Structural and Standard Project Flood alternatives were early dismissed from further planning efforts because they were determined to be economically unjustified. The EQ, NED, Plan A, and the Recommended Plans were studied in a more detailed analyses and evaluation. The EQ alternative considers essentially all possible (and viable) environmental flood control features, while the NED plan maximizes national economic benefits. Originally, Plan A was selected as the Recommended Plan. This plan met planning objectives of high urban flood protection within cost limitations, while also providing both realistic recreational and environmental features. However, in December, 1983, the COE selected the present Recommended Plan which specifically maximizes national economic benefits and contains several recreational features yet excludes all environmental features.

FEATURES OF THE RECOMMENDED PLAN

The Recommended Plan at the present time consists of the following elements or features. Also, it is upon these features that this report is based. This plan is subject to modifications based on factors of cost, benefit, and desires of the public.

Channel Modification

Cape La Croix would be modified between miles 2.8 and 3.8. The creek's channel would be widened to approximately 75 feet, between miles 2.8 and 3.1 and would be constructed of concrete with vertical side slopes. A trapezoidal-shaped, riprap channel would extend between mile 3.2 and 3.8. Bridge approaches would be provided with riprap transitions in various locations.

Improvements on Walker Branch would consist of a 60-foot wide concrete channel improvement from the mouth up to Independence Street between mile 0.0 and 0.90. A 50-foot bottom width concrete channel would exist between Independence Street and the Kingsway Bridge. A 75-foot bottom width grass-lined channel with 1 vertical to 3 horizontal side slopes extends from Kingsway to mile 1.71. From mile 1.71 to Cape Rock Drive at mile 2.00, a 35-foot bottom width grass-lined channel would be provided. A display of the features of the Recommended Plan is shown in tabular form in Table 1.

TABLE 1
CAPE LA CROIX CREEK AND WALKER BRANCH

RECOMMENDED PLAN CHANNEL IMPROVEMENT FEATURES

	Channel Reach	Feature		
		<u>Bottom Width</u>	<u>Channel Lining</u>	<u>Side Slope</u>
A.	Cape La Croix Creek			
	Mile 0.36 - 2.76	-	-	-
	2.8 - 3.1	75 ft.	Concrete	Vertical
	3.2 - 3.8	-	-	-
B.	Walker Branch			
	Mile 0.00 - 0.90	60 ft.	Concrete	Vertical
	0.90 - 1.71	75 ft.	Grass	3:1
	1.71 - 2.00	35 ft.	Grass	3:1

Dry Detention Reservoir

A 163 acre dry detention reservoir would be constructed on an unnamed tributary to upper Cape La Croix Creek about 4-1/2 miles north of Hopper Road. It would have sufficient storage to hold runoff from a storm having a 10 percent chance of occurrence.

Miscellaneous

Housing located near Sprigg Street along the Cape La Croix Creek and residences in the Golliday Addition at Terry Lane on the Walker Branch would be replaced with parks. Several mobile homes on Walker Branch, upstream of Bessie Street would be relocated and replaced by a small strip park. Overall, the plan includes 7.3 miles of hike/bike trails, park recreational facilities and recreational plantings.

During the planning phase an EQ corridor was identified along Cape La Croix Creek between Independence Street and a dry detention reservoir. An EQ corridor was proposed from Independence Street to Hopper Road to Highway 61; Highway 61 to Highway W; and Highway W to the detention site. An environmental corridor was also planned along the Walker Branch between Broadway and Marietta streets, and between Marietta and Cape Rock streets. However, the EQ corridor is not included in the present Recommended Plan.

DESCRIPTION OF THE PROJECT AREA

The September, 1982, Final Fish and Wildlife Coordination Act Report described the project area's soils, climate, and land uses. That information will not be repeated at this time to avoid unnecessary duplication.

Aquatic and Terrestrial Resources

Terrestrial

The "Biological Inventory, Cape La Croix Creek Watershed, Cape Girardeau County, Missouri" prepared by the Midwest Aquatic Enterprises (January, 1977) has a comprehensive list of wildlife found in the study area and describes the habitat in which they are found. Typical animals found in the watershed are muskrats, beavers, fox and gray squirrels, red bellied woodpeckers, warblers, mourning doves, crows, blue jays, night hawks, turkey vultures, and numerous amphibians and reptiles. These species vary in abundance according to type and condition of habitat present.

Aquatic

The watershed of the Cape La Croix Creek and its tributaries is classified as Ozark Upland except for the lower portion which is classified as Southeastern Lowland (Pfleiger, 1975). Approximately 75 percent of the watershed is in an urban setting.

The Ozark Upland portion of Cape La Croix Creek is higher gradient than the Southeastern Lowland portion. The Ozark Upland segment has a bedrock/cobble/gravel bottom which is maintained by the stream's steep gradient. The flora of this stream segment is primarily attached algae

(periphyton). Zooplankton is not abundant except in pool areas. Stonerollers, creek chubs, and black spotted top minnows are the major fish species present (Midwest Aquatic Enterprises, 1977).

The Southeastern Lowland reach of La Croix Creek is in an urban environment. This part of the stream is primarily mud bottom except east of Spriggs Street where rock rubble and cobble is sparsely distributed. A large portion of the stream was previously channelized. In unchannelized stream sections, various minnow species are found, including red shiners, red fin shiners, suckers and bullheads. Other fish species common to the Mississippi River may also be found in the creek during periods of backwater flooding. The resource value of the creek in the channelized portions has been substantially reduced. This area includes most of the length of the creek in the lowland reach, downstream to its confluence with the Mississippi. Walker Creek, a small tributary to Cape La Croix Creek, is partly channelized and urbanized, with "manicured" lawns in place of riparian vegetation. Little habitat exists in or along the Walker Creek for fish or wildlife resources (Midwest Aquatic Enterprises, 1977).

PROJECT EFFECTS ON AQUATIC AND TERRESTRIAL RESOURCES

The present Recommended Plan is similar to Plan A which was evaluated in the September 20, 1982, Fish and Wildlife Coordination Act Report, thus, similar impacts are anticipated.

Since the sections of Cape La Croix Creek and the Walker Branch that would be effected by the proposed project are within the highly developed inner city portion of Cape Girardeau, the proposed project would have minimal effect on the existing habitat in the area. However, channel enlargement and right-of-way clearing would decrease the wildlife resources along Cape La Croix Creek and Walker Branch. These impacts can be minimized if channel construction occurs on one side only. Also, removal of vegetation should be limited to that absolutely necessary. The dry detention reservoir will largely impact wildlife during construction. However, conditions for wildlife will improve and remain relatively stable following the construction activities.

Cape La Croix Creek and the Walker Branch will be lined with concrete and enlarged in several areas. This would have an effect on the remaining fishery resources. Certain measures should be taken to replace old and/or create new habitat in the area.

The native grasses planted along the canals, etc., should not be mowed too frequently - perhaps once a year. Management by burning once every three years would also be desirable. Such periodic mowing and burning should prevent any undesirable trees, etc., from becoming established on the banks. Mowing the grasses about the first of August would be after the peak productive season of most ground-nesting wildlife species, and would still allow for some regrowth of the grass after mowing. This late summer regrowth would be especially beneficial to the root systems, which helps keep the grasses healthy and competitive with less desirable vegetation.

Elsewhere, on those areas adjacent to the channel, native grasses and forbs should be planted along with shrubs and a few mast producing tree species such as walnuts, oaks, and hickories. These kinds of trees should be planted only

sparsely, perhaps two or three per acre, or in fencerow situations. This would provide good wildlife habitat, and also could serve as an outdoor classroom setting for school and/or nature study groups.

Any borrow area involved in the project, providing they are of moderate depth - perhaps 6 to 12 inches and with gently sloping banks - could be designed to form open water/shallow marsh complexes or fishing ponds. The future use of any borrow areas would depend upon their location, ownership, and design.

RECOMMENDATIONS

As stated earlier, the proposed flood control plan is similar to the plan evaluated in the September 20, 1982, Fish and Wildlife Coordination Act Report. For this reason, many of the recommendations presented in that report are applicable to the present Recommended Plan.

To prevent habitat losses, we recommend the following measures be implemented.

- a. Channel construction along Walker Branch should be restricted to one side only. Removal of vegetation should be limited to that absolutely necessary to accomplish flood control measures.
- b. Small trees, shrubs, grasses and forbs should be planted in areas where dense timber is cleared. Management of these areas should include limited maintenance mowing (August 1 of any given year).
- c. Because of the serious lack of EQ corridor features in the Cape Girardeau area, as well as the need for environmental considerations in urban areas and ever-increasing demand for open space (based on population growth and leisure time activity preferences, etc.), we believe the EQ corridor features should be reincorporated in the Recommended Plan.

CONCLUSION

Since the aquatic and terrestrial habitat has been degraded and destroyed by previous locally funded flood control projects, no mitigation per se will be required on this project. However, it is unfortunate that the EQ features are not included in the Recommended Plan. These features would have enhanced the remaining ecological important areas in the Cape Girardeau community. Although several features in the present plan (i.e. hike/bike trails) will be beneficial to the people, we hasten to emphasize that by again incorporating the EQ features with the Recommended Plan the COE would be returning some of the aesthetic and ecological values to the Cape Girardeau community that were lost to piecemeal development and previous stream channel modifications.

We appreciate the opportunity to provide you with this report of the impacts of the proposed project. Should you have any questions concerning this letter or desire additional information, please contact Ms. Mamie Parker at this office.

Sincerely yours,



Tom Nash
Field Supervisor

cc: MDC, Jefferson City, MO
(Bill Diefenbach)

LITERATURE CITED

Midwest Aquatic Enterprises. 1977. Biological Inventory Cape La Croix Creek Watershed, Cape Girardeau County, Missouri.

Pfleiger, W. L. 1975. The Fishes of Missouri, Missouri Department of Conservation, Jefferson City, MO.

ST. LOUIS DISTRICT'S RESPONSE TO
UNITED STATES FISH AND WILDLIFE SERVICE
REVISED FINAL FISH AND WILDLIFE COORDINATION ACT REPORT
DATED 5 JANUARY 1984

COMMENT: Channel construction along Walker Branch should be restricted to one side only. Removal of vegetation should be limited to that absolutely necessary to accomplish flood control measures.

RESPONSE: This feature has been included as part of the recommended project plan.

COMMENT: Small trees, shrubs, grasses and forbs should be planted in areas where dense timber is cleared. Management of these areas should include limited maintenance mowing (August 1 of any given year).

RESPONSE: This feature will be explored for possible application during the project's design phase.

COMMENT: Because of the serious lack of EQ corridor features in the Cape Girardeau area, as well as the need for environmental considerations in urban areas and ever-increasing demand for open space..., we believe the EQ corridor features should be reincorporated in the Recommended Plan.

RESPONSE: Your comment is acknowledged. However, current Corps policy strongly directs that EQ features be placed only on lands purchased for the primary project purpose; in this case for flood control. The previously recommended corridor was not located on project lands.